

Research on the Business Model of Enterprise Energy Service Based on Digitalization

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Abstract. State Grid e-commerce Co., Ltd. (hereinafter referred to as "State Grid e-commerce company") aims to realize the Internet of core business transactions, and undertakes the important mission of expanding new business areas and cultivating new profit growth points. Through in-depth study of new digital products and business models in the energy service market, expanding the business chain, enhancing the value chain, cultivating new advantages and enhancing new power, the market competitiveness and sustainable development ability of power grid enterprises will be effectively improved, which is a business innovation exploration to actively respond to the reform of power system and the strategic changes of State Grid Corporation.

1. Introduction

With the close integration of the digital economy and the real economy, modern information technologies such as the big cloud mobile intelligence chain are widely used in the power industry, opening up a new and broad space for enterprise efficiency improvement and value creation. In line with this trend, the State Grid put forward the strategy of building "an international leading energy Internet enterprise with Chinese characteristics" in 2020. The State Grid e-commerce company, as an important carrier for the State Grid to promote the digital transformation and explore new business types and new models, shoulders the important task of cultivating new markets and benefit growth points. Its mission and positioning determine that the State Grid e-commerce company must respond to the strategy of the State Grid Company, build a new engine of energy digital economy, form an innovative development mode of e-commerce with the characteristics of the State Grid, and promote the upgrading of traditional power supply services to energy Internet services. We will innovate from multiple dimensions, including business model, service model and management mode, to increase the core competitiveness of e-commerce companies.

In 2017, the general office of the State Council issued the implementation opinions on the construction of the second batch of mass entrepreneurship and innovation demonstration bases, listing State Grid Corporation of China as one of the second batch of enterprise innovation and entrepreneurship demonstration bases. Building the Internet business platform of the State Grid e-commerce company is an important means for the State Grid Company to build an enterprise innovation and entrepreneurship demonstration base. Through e-commerce means, the traditional business of the State Grid

Company is endowed with new connotation, so that it has a stronger market competitiveness. This requires the State Grid e-commerce company to innovate and summarize in practice, form an e-commerce innovation and development mode with the characteristics of the State Grid, boost the online application of the State Grid Company's offline business, optimize customer experience, and strive for market competitiveness. On the other hand, the State Grid e-commerce company innovates the enterprise energy service mode, relies on its main business to expand emerging markets, cultivates new business innovation points and profit growth points, and promotes the continuous and steady improvement of development quality and benefit level[1-3].

2. Research ideas on digital business model of enterprise energy service

According to the research ideas of "situation analysis, practice research, demand identification, capability analysis and scheme design", the project implementation will be comprehensively promoted[4-5].

2.1. Carry out policy situation analysis

Analyze the advantages and problems faced by the project, and analyze the new changes, trends and demands of enterprise energy services in combination with the trend of the integration of energy revolution and digital revolution and the development of industrial clusters.

2.2. Conduct case studies

Study the typical domestic cases, summarize the experience and enlightenment, carry out the research of

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external units, study the excellent practices and practical experience, analyze the key points of the promotion and application of typical enterprise digital products and services in the industry, and put forward the experience that can be used for reference.

2.3. Design product matrix

Focusing on the energy service needs of enterprises, industrial parks, commercial buildings, etc., through analyzing the energy consumption characteristics of typical enterprises, identifying customer types, customer group characteristics, analyzing energy consumption characteristics, investigating the energy service needs of enterprises, clarifying the new key points of energy service for enterprise users in various fields, focusing on classified users, based on the needs of enterprises and key decision makers, focusing on intelligent payment, demand side response, power substitution, energy efficiency improvement According to the demand of energy finance and other energy services, research and design the digital product and service matrix of enterprise energy consumption of State Grid e-commerce companies.

2.4. Propose business model

From the aspects of digital blueprint design and guarantee support of enterprise energy service, this paper puts forward the new business type and new mode of enterprise energy digital product development, and designs the business mode of enterprise energy service digital service that is suitable for the development strategy of State Grid e-commerce company according to the typical products and services.

2.5. Research and promotion path

This paper studies the implementation path and key marketing strategies of the new format of enterprise energy service digital service of State Grid e-commerce company.

3. Introduction to research theory

3.1. PEST analysis

PEST analysis method is the basic tool for the research of enterprise energy service digital business model, and it is to analyze the external macro environment in which the power industry currently carries out digitization. Among them, politics refers to the impact of national or regional policies and regulations on industries and enterprises, economy refers to the macro environmental elements of the development level and development trend of the national economy, s refers to the general situation of the social development in a certain period of time, and t refers to the overall technical level and change trend of the market. Generally speaking, important technological level changes will increase the consumption of relevant products in the market and may change the habits of

enterprises in using energy.

3.2. Benchmarking analysis

Benchmarking analysis is to compare the activities of the enterprise with the best person engaged in the activity, so as to put forward action methods to make up for their own shortcomings. Through benchmarking analysis, the project will systematically analyze the excellent cases of big data service industry development and regional economic development, summarize its successful experience in resource development and utilization, business innovation and product service, and provide reference for the regional economic development of power big data service.

3.3. Business ecosystem theory

The concept of business ecosystem was first proposed by Moore, a famous American economist, on the Harvard Business Review. It combines the theory of ecology and creatively expounds the development stage of business ecosystem and the strategic choice of enterprises in it. Many theories such as value chain theory, resource view theory, strategic network, organizational ecology and enterprise population also provide solid theoretical support for it.

4. Analysis of digitalization situation of enterprise energy service market

On the one hand, from the policy situation, the development of digital economy, the development of digital products and other aspects, this paper analyzes the prospects of the enterprise energy service market, and defines the main direction and key measures for the development of the enterprise energy service market; On the other hand, starting from the characteristics and value of digital products, the digital form of enterprise energy service is analyzed. Analysis of digitalization situation of enterprise energy service market is shown in Table 1.

Table 1. Analysis of digitalization situation of enterprise energy service market.

Policy situation analysis	(1) The optimization of energy structure has become a national strategy, setting off a new round of energy "revolution". (2) The construction of energy Internet has brought strong policy support to the energy service market. (3) State Grid put forward the strategy of "building an international leading energy Internet enterprise with Chinese characteristics" to promote the transformation to an energy Internet enterprise.
Development of digital economy	(1) In 2019, China's digital economy grew by 15.6%, nearly 7.8 percentage points higher than the GDP growth rate in the same period. The digital economy has become the key driving force to promote national economic growth.

	(2) From 2014 to 2019, the contribution rate of China's digital economy to GDP growth has always exceeded 50%. In 2019, the contribution rate of digital economy to economic growth reached 67.7%, becoming one of the core growth poles driving economic development. (3) In 2019, the scale of industrial digitalization in all provinces accounted for more than 60% of the digital economy. Among them, the scale of industrial digitalization in Beijing, Shanghai, Zhejiang and other provinces accounted for more than 30% of GDP. Industrial digitalization is the main support for regional economic growth.
Development situation of energy industry	(1) From 2016 to 2019, China's energy consumption per unit of GDP decreased by 13.2%, reaching 1.5 times the world average level, but China's energy consumption still has great potential for energy reduction. (2) As an important fulcrum of the energy revolution, the energy Internet will effectively promote the energy revolution, break industry barriers, innovate business models and market mechanisms, so as to significantly improve the efficiency of energy production and consumption and reduce costs.

5. Demand analysis of digital products and services for energy consumption of enterprises

From the two dimensions of enterprise operation demand and internal key decision-makers' demand, this paper analyzes the energy consumption characteristics of key industries such as steel, machinery and automobile, as well as industrial parks and commercial buildings, and analyzes the innovation space of enterprise energy digital products and services in combination with the development stage, scale, growth and profitability of the industry. By identifying the types of customers and the characteristics of customer groups, the target customers of State Grid e-commerce companies' digital energy products and services are identified, which is conducive to vertical business innovation and horizontal service expansion.

5.1. Common problems of energy consumption in Enterprises

According to the survey of different energy service demands in key industries, industrial parks and commercial buildings, there are three problems in enterprise energy management. First, electricity expenditure is usually one of the four largest costs of enterprises. For most enterprises, electricity expenditure is the last considerable cost not controlled by enterprises; Second, the enterprise energy management organization is not perfect, and most enterprises trust the power management department in the equipment department or logistics department, which can not achieve professional management. Third, the management means are low. The management method is mainly based on experience

management, which is more traditional and extensive. There are potential safety hazards, so it is unable to achieve pre management and ensure reliable and stable power consumption. Therefore, the "digitalization, visualization, networking and specialization" of enterprise energy management is an important means to achieve "safe, reliable, economical, efficient and clean" power consumption, and an effective way to improve the level of enterprise energy management.

5.2. Key points of energy demand for enterprises

In view of the above problems, the demand for digital energy products and services of enterprises is mainly reflected in the access, perception, monitoring, application, analysis and management improvement of enterprise energy data. The first is to carry out the whole process of metering access to achieve real-time data acquisition and data processing for the user side terminal equipment; The second is to carry out the whole process monitoring, monitor and display the power consumption level, energy consumption status, peak load shifting and valley filling, and monitor the power quality and power safety; The third is to carry out the whole process of electricity charge analysis and provide the most economical energy consumption plan; Fourth, carry out energy consumption analysis, intelligent early warning of power consumption waste, and implement the information system for business implementation such as user side energy efficiency management and demand response; Fifthly, through the energy efficiency analysis, put forward the improvement suggestions of the energy consumption system.

5.3. The focus of enterprise energy digital service

First, fully seize the development opportunity of enterprise energy service to create an enterprise energy platform. With the help of the pilot of incremental distribution reform and the policy of energy Internet construction, the advantages of the State Grid, the experience of successful e-commerce products such as e-commerce platforms, e-bao, and State Grid business travel, the emerging technology of "Internet + energy" should be used to give play to the core position and scale advantages of e-commerce companies in the e-commerce industry of the State Grid, build an enterprise energy service platform for all users, and build a fist product and service brand, Promote the transformation of the company into a platform enterprise. The second is to meet the hierarchical energy demand and build a diversified product system. Collect the needs of energy managers from enterprises of different sizes, different types of users, different industries and different levels for energy big data service products and application scenarios, and create a diversified and three-dimensional product system. Third, we should apply new technologies to develop products and services and promote industrial innovation. According to the development needs of the power market, we will cooperate with advanced Internet enterprises to jointly explore the new mode of "Internet + enterprise energy service", build a cloud platform for enterprise energy

service based on the Internet and big data, realize the multi screen access of PC and app, combine with the industrial Internet to create the Internet of things access standards for enterprise energy, develop digital analysis models for different industries and different scenarios, and continue to carry out product and service innovation.

6. digital products and business models of enterprise energy service

Clarify the blueprint of the enterprise energy service market, design the enterprise energy service product system, and propose the development plan of digital products in combination with the company's big data service ability. Combined with the planning and design of product system, build the digital business model of enterprise energy service, create an energy digital ecosystem, realize the realization of digital service value, and lead the development of energy ecology.

6.1. Product system construction

According to the needs of three major service objects, namely, key industries, industrial parks and commercial buildings, focusing on power services, and according to the core capabilities required for the development of the platform, 11 basic service modules are divided into five functional modules, including data base, real-time monitoring, energy efficiency improvement, information consulting, market trading and finance, to promote enterprises' energy consumption to reduce energy consumption costs, clear energy flow direction and power safety, In order to obtain the most reasonable energy utilization effect and benefit.

6.2. Digital product design ideas

First, build an extensible platform on the existing system to provide a basic platform for multi enterprise energy services. Second, comprehensive energy services use information platform, intelligent management and other technologies to achieve social / industrial energy consumption big data collection and analysis, guide the whole society / industry to improve energy efficiency and formulate energy policies. Third, comprehensive energy services through the digitization and informatization of the energy field, realize the refined management of energy, meet the needs of enterprise energy conservation and green certification, improve the awareness of enterprise energy conservation and emission reduction and social responsibility, and shape a good image of the enterprise. Fourth, enterprise energy services can effectively drive the upgrading and transformation of digital technology by creating a new model of energy services, a new form of business ecology, and a new driving force for market development.

6.3. Profit model of enterprise energy service

As an industrial form, enterprise energy service involves a large number of market players. Different types of market players have different needs. They get key business, important cooperation, core resource capabilities, value proposition, and channel access. Finally, the profit model of energy big data service is analyzed. The profit model of enterprises' energy service is how to make profits in the form of industry and how to realize the value orientation of their products or services. When integrating into the service business of digital economy development and helping the company's intelligent operation, there are mainly five profit collection channels, including data product fees, data service fees, resource usage fees, selling personalized products, and financial profits.

7. Conclusion

Based on their own advantages, power grid enterprises, Internet enterprises and energy enterprises are taking enterprise energy service as a new development opportunity, and are rapidly building a competitive advantage in the field of enterprise energy service. The integrated development of enterprise energy service and energy Internet of things is the connection of business and data, and will form a cross professional data sharing situation. Through the combination of the offline services of precise marketing for enterprise users and the online services related to data-based energy efficiency services, the data-based energy efficiency services of online and offline integration can be realized. Continue to enrich and improve the platform ecosystem, expand the ecological coverage, promote more market players to participate in the value creation and sharing of energy e-commerce, comprehensively build a new energy E-commerce Internet Ecosystem of mutual benefit and win-win results, realize the common development of upstream and downstream enterprises in the industrial chain, and promote the upgrading of the industrial base and the modernization of the industrial chain.

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